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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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J. Spencer Grant

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STOEL RIVES LLP - SLC  
201 SOUTH MAIN STREET  
ONE UTAH CENTER  
SALT LAKE CITY, UT 84111

EXAMINER

REIDEL, JESSICA L

ART UNIT

PAPER NUMBER

3766

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 09/815,885	<b>Applicant(s)</b> GRANT ET AL.	
	<b>Examiner</b> Jessica L. Reidel	<b>Art Unit</b> 3766	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 February 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 16-40 is/are pending in the application.
- 4a) Of the above claim(s) 6 and 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 16-23 and 30-38 is/are rejected.
- 7) ☒ Claim(s) 8-14, 24-29, 39 and 40 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 October 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                        |                                                                   |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06/07</u> .                                                   | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. Acknowledgement is made of Applicant's Amendment(s), which were received on September 7, 2007, October 23, 2007 and February 6, 2008. Claim 15 has been cancelled. Claims 1-14 and 16-40 are currently pending. Claims 6 and 7 were previously withdrawn.

#### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on June 15, 2007 has been acknowledged and is being considered by the Examiner.

#### ***Drawings***

3. In view of the response filed October 23, 2007, the objections applied against the Drawings in the Office Action of May 18, 2007 have been withdrawn. The Examiner accepts Applicant's Replacement Sheets and New Figures 6a and 6b.

#### ***Specification***

4. In view of the response filed September 7, 2007, the objections applied against Applicant's disclosure in the Office Action of May 18, 2007 have been withdrawn. The Examiner accepts Applicant's replacement Specification and Abstract.

#### ***Claim Objections***

5. In view of the response filed September 7, 2007, the objections applied against the claims in the Office Action of May 18, 2007 have been withdrawn.

6. Claim 30 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Specifically, newly amended Claim 2 previously defines that the

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method comprises authenticating an individual based on the weighted pre-selected heartbeat waveform features.

***Claim Rejections - 35 USC § 112***

7. Applicant's arguments with respect to the 35 U.S.C. 112, first paragraph rejections applied against Claims 8, 14 and 40 in the prior Office Action (see page 16 of the Remarks filed September 7, 2007), have been fully considered and are persuasive. The 35 U.S.C. 112, first paragraph rejections applied against Claims 8, 14 and 40 in the Office Action of May 18, 2007 have been withdrawn.

8. Applicant's arguments with respect to the 35 U.S.C. 112, second paragraph rejections applied against Claims 3-5 in the prior Office Action (see page 17 of the Remarks filed September 7, 2007), have been fully considered but they are not persuasive.

9. In view of the response filed September 7, 2007, the 35 U.S.C. 112, first paragraph rejections applied against the Claims 13 and 29 in the Office Action of May 18, 2007 have been withdrawn.

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 3-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the language of these claims appears to contradict those limitations previously set forth in Claim 2. Claim 2 defines that "for each electronic heartbeat signal" acquired, "a plurality of pre-selected heartbeat waveform features" are measured. It is to the Examiner's best understanding that one embodiment of Applicant's invention includes measuring or acquiring, in addition to the selected heartbeat waveform features, other internal biometric features which are not related to a heartbeat waveform (see, for example, page 12, paragraph 48 of Applicant's replacement

disclosure). Based on this understanding, and since Claim 2 uses the term "features", it is unclear Applicant's intentions of "variables" recited in these dependent claims. There is insufficient antecedent basis for these limitations in the claims.

***Claim Rejections - 35 USC § 101***

12. In view of the response filed September 7, 2007, the 35 U.S.C. 101 rejections applied against the claims in the Office Action of May 18, 2007 have been withdrawn.

***Claim Rejections - 35 USC § 102***

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

14. Claims 1-3, 16, 17 and 30-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Biel et al. "ECG Analysis: A New Approach in Human Identification" (herein Biel). Biel expressly discloses software for performing a method to individualize an ECG for use in biometric authentication. The method comprises acquiring a plurality ECG signals from an individual (i.e. a 12-lead rest ECG) and for each ECG, measuring, a plurality of pre-selected heartbeat waveform univariate and multivariate features to generate corresponding measurements. The features are statistically weighted for variance since Biel specifies that all of the features are correlated with one another and features with a relative high correlation with other features are removed. Biel expressly discloses that a user may be authenticated using the weighted pre-selected heartbeat waveform features. Specifically, those features which exhibit low correlation with other features are used in a pattern recognition scheme for identifying persons from a predetermined group of persons (see Biel entire document).

***Claim Rejections - 35 USC § 103***

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

17. Claims 18-23 and 33-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biel. Biel does not disclose expressly that the pre-selected ECG waveform features comprise a position of a dirotic notch, a difference between two peak amplitudes, a difference between two peak rate of changes, how far a dirotic notice is from a zero point, an upslope of a maximum peak or a down slope of a maximum peak. Instead, Biel indicates that the pre-selected ECG waveform features are preferably any one of a plurality of those depicted in Table A of the Appendix (see Biel page 561).

18. At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art for the pre-selected ECG waveform features to comprise the claimed features because Applicant has not disclosed that any one feature provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Biel's method, and Applicant's invention, to perform equally well

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with either the features taught by Biel of the claimed features because they all would provide the same function of providing measurements for individualize an ECG for use in biometric authentication. Therefore, it would have been prima facie obvious to modify Biel to obtain the invention as specified in the claims because such a modification would have been considered a mere design consideration which fails to patentably distinguish over the prior art of Biel.

19. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biel in view of Stone et al. (U.S. 2001/0033220) (herein Stone). Biel discloses the claimed invention, as previously discussed, except that it is not specified that the method include measuring a plurality of variables. Stone, however, teaches that it is convention and well known in the art to layer biometric information for use in a method and system for verifying an individual's identify in order to offer greater accuracy for the authentication (see, for example, Stone Abstract, page 1, paragraphs 6-8 and 10-12 and page 2, paragraphs 25-27). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Biel such that a plurality of biometric measurements are acquired as taught by Stone in order to improve the accuracy of the identification.

#### ***Response to Amendment***

20. The declaration under 37 CFR 1.132 filed September 7, 2007 is insufficient to overcome the rejection of the claims based upon Murakami et al. (U.S. 2002/0138768) (herein Murakami) as set forth in the last Office Action. When subject matter, *disclosed but not claimed* in a patent or application publication filed jointly by S and another, is claimed in a later application filed by S, the joint patent or application publication is a valid reference under 35 U.S.C. 102(a) or 35 U.S.C. 102(e) unless overcome by affidavit or declaration under 37 CFR 1.131 or an unequivocal declaration under 37 CFR 1.132 by S that he/she conceived or invented the subject matter disclosed in the patent or

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application publication and relied on in the rejection (emphasis added). *In re DeBaun*, 687 F.2d 459, 214 USPQ 933 (CCPA 1982).

21. The declarations filed on February 6, 2008 under 37 CFR 1.131 are sufficient to overcome the Murakami reference.

***Double Patenting***

22. In view of the abandonment of Application No. 09/814,607, the obvious-type double patenting rejections applied against the claims in the prior Office Action have been withdrawn.

***Terminal Disclaimer***

23. The terminal disclaimer filed on September 7, 2007 has been reviewed and is accepted because a PTO/SB/96 has not been submitted and because the abandonment of Application No. 09/814,607.

***Response to Arguments***

24. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

***Allowable Subject Matter***

25. Claims 8-14, 24-29, 39 and 40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

26. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.



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27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessica L. Reidel whose telephone number is (571)272-2129. The examiner can normally be reached on Mon-Thurs 8:00-5:30, every other Fri 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl H. Layno can be reached on (571) 272-4949. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jessica L. Reidel/  
Patent Examiner, Art Unit 3766  
February 23, 2008

/Kennedy J. Schaetzle/  
Primary Examiner, Art Unit 3766  
February 26, 2008